

PROCEEDINGS
OF THE
GENERAL MEETINGS FOR SCIENTIFIC BUSINESS
OF THE
ZOOLOGICAL SOCIETY OF LONDON.

PAPERS.

26. On Mammals collected by Captain Shortridge during the Percy Sladen and Kaffrarian Museum Expedition to the Orange River. By OLDFIELD THOMAS, F.R.S., F.Z.S., and MARTIN A. C. HINTON, F.Z.S.

[Received May 15, 1923: Read June 12, 1923.]

(Published by permission of the Trustees of the British Museum.)

Thanks to the generosity of the Percy Sladen Trustees, and the kind co-operation of the authorities of the King William's Town Museum, Capt. Guy Shortridge, already so well known as a collector in Burma and elsewhere, has been enabled to make a collecting expedition to the Middle Orange River, a region whence the British Museum has received but very few mammals, and one whose faunal characteristics much needed investigation.

The only considerable collections that have been received from this direction were one made in Little Namaqualand by Mr. C. H. B. Grant for the Rudd Exploration*, a later one formed by Messrs. Woosnam & Dent in Bechuanaland †, and finally that obtained on Mr. Woosnam's expedition to Lake Ngami and described by Capt. Dollman ‡.

The present collection was obtained in the neighbourhood of Upington, on the Middle Orange River, and forms a very important addition to our materials for the study of the mammal fauna of South-West Africa. It consists of 378 specimens

* See Thomas & Schwann, P. Z. S. 1904, vol. i. p. 171.

† Schwann, P. Z. S. 1906, vol. i. p. 101.

‡ Ann. & Mag. N. H. (8) vol. vi. p. 388, 1910.

representing 34 species, and as these were all obtained in the course of two months, it forms a striking tribute to Capt. Shortridge's energy and collecting ability.

We have had occasion to describe five species and sub-species as new, partly from the collection itself, and partly from other collections which the study of the fresh material has enabled us more fully to understand. Such more accurate discrimination of earlier material is by no means the least of the benefits to science rendered by the collection of such series as the present.

Half of the collection, including all the types, is presented to the National Museum by the Percy Sladen Trustees, and half is returned to the Kaffrarian Museum, King William's Town, of which Capt. Shortridge is Curator. He has sent us the following report on this expedition, and as it gives a good account of the natural characteristics of the region, we have thought it well to publish it nearly *in extenso* :—

“Through the kindness of the Administrator, Sir Frederick de Waal, special shooting facilities were obtained; while by arrangement with Dr. L. Péringuey, Director of the South African Museum, considerable rail fare reductions were secured.

“During the first six weeks I was joined by Mr. A. White, who was sent by Dr. Péringuey to gain experience in trapping and other field work, in which he proved himself a keen and useful assistant.

“Later, during my visit to and below the Augrabies Falls (which by crossing a number of side streams were seen while in flood) I was accompanied by Mr. W. Louw, who acted as assistant, and Dutch interpreter.

“The country generally, with its sparse rainfall, but remarkable strip of rich irrigable soil that varies from a width of under a hundred yards to over two miles on either side of the river, is in some ways quite like Egypt on a small scale, and should be capable of great development, although the river itself, with its dense belt of low trees, and muddy water, is more reminiscent of the Jordan.

“This belt is by far the most striking feature in the district. The trees grow only on the low ground that is periodically flooded, and consist largely of Willows, Mimosa and other shade trees. There is little or no real undergrowth, and prior to cultivation the soil between the trees is bare and loose. An extraordinary variety of birds collect and breed here.

“On either side of this alluvial belt the country is bare and arid, sparsely covered with very low scrub with here and there a few isolated kopjes, which are supplemented to the westward by considerable ranges of rocky hills that commence about halfway between Upington and Kakamas.

“In several places on the north bank strips of typical red Kalahari sand extend to the river, which roughly forms the southern boundary of the Kalahari. The river itself should not otherwise prove an important barrier between any two faunistic

regions, as it is intersected for nearly its whole length between Upington and the Falls by innumerable islands which are often only divided by narrow channels, most of which cease running or become entirely dry when the river is low; while again the tree belt is broken in several places for short distances by rocky hill ranges that run astride of the river.

"The first three camps (altitude 2,600 ft. approximately) were made at Louisvale, a new but very progressive irrigation settlement on the south bank of the river, at points between ten and fifteen miles west from Upington; but as Louisvale is not marked on small-scale maps, all specimens obtained in that district were labelled: 'Near Upington—south bank of Orange River.'

"These camps, although within a few miles of each other, enabled me to make collections among kopjes and rocky areas; salt-bush and typical open country; the river tree belt; and near cultivation.

"The fourth camp (altitude 2,000 ft. approximately) was made on the north bank of the river, close to the little known Orange River (Augrabies) Falls, about ninety miles west of Upington.

"The river here splits up into several streams, the main and two subsidiary Falls descending into a narrow gorge, said to be about 500 feet in depth. Two others—one almost equal in volume to the main fall—enter several miles lower down.

"Except for a few squatters, who are chiefly engaged in looking after herds of donkeys and goats, there is no population in the neighbourhood.

"A fifth camp (altitude 1,500 ft. approximately) was made also on the north bank, about twelve miles below the Falls, a few miles above where the dry Molopo joins the Orange River, which has widened out again into large pools that resemble a string of lakes, shut in by high rocky hills and thinly fringed with trees.

"Except for a few wandering Hottentots the country here is entirely uninhabited.

"It may be noted that neither *Chrysochloris* nor *Cryptomys* were met with. I found no signs of molehills and was assured by residents that they did not exist in the region.

"Hedgehogs, if not absent, must be extremely rare, as they appear to be practically unknown along this section of the river. Shrews may occur, but there is little doubt that they are generally scarce throughout the dry South-Western area.

"Antbears, judging by the comparative scarcity of their burrows, are not plentiful.

"At Upington I saw part of an old dry skin of a Pangolin that had been obtained in that district.

"A few residents spoke vaguely of Wild Pig from some of the islands, but their present occurrence is exceedingly doubtful.

"Among the larger game reported to occur within from 50-100

miles of Upington in the direction of the Kalahari Desert may be included:—Red Hartebeest, Blue Wildebeest, Black Wildebeest (said to exist in a wild state), Gemsbuck, Kudu (a single straggler was recently reported from near the Falls), Springbuck, Duiker, Zebra, Lion, Leopard, Wild Dog, Spotted and Brown Hyæna, *Proteles*, and *Cynelurus*."

1. *CERCOPITHECUS PYGERYTHRUS* Cuv.

♂. 228. ♀. 7, 195. Louisvale, near Upington. 2600'.

♂. 343. Angrabies Falls, 90 miles W. of Upington. 2000'.

"Plentiful among the trees that fringe the banks of the Orange River, probably rarely if ever leaving the wooded course of the river, along which it is said to extend as far as its mouth, although, as there is an extensive break in the wooded area below the Falls, this remains to be confirmed.

Like the Burmese and Malay Crab-eating Monkeys they take readily to water when hunted. Often doing a considerable amount of damage among crops and fruit; their consequent persecution has rendered them rather shy.

Baboons were observed among the rocky hills at and below the Falls; but nowhere further east."

2. *NYCTERIS DAMARENSIS* Pet.

377, 378. Louisvale.

The specific distinction of *damarensis* from *capensis* depends mainly on the greater size of the ears, but there is some variation in the size of these organs, and every probability that the two forms will be found to intergrade. Dr. Andersen, however, has recognised *damarensis* as a species, and we therefore provisionally follow his example.

3. *EPTESICUS CAPENSIS* A. Sm.

Six males, thirty-one females, in skin, and seven in spirit. Louisvale.

"By far the most plentiful bat in the district. Appearing well before dusk, frequently collecting in large numbers over water.

Most of the specimens obtained were found roosting in hollow trees along the banks of the Orange River; but also hiding by day under the roofs of houses."

4. *NYCTINOMUS BOCAËI* Seabra.

♂. 245, 250, 251, 314, 379. ♀. 267, 315.

"Obtained in hollow trees; singly or in pairs; often in company with *Eptesicus*. Seldom observed in flight, but possibly a late flyer.

A Fruit-bat, considered to be somewhat rare, occurs around Upington, having possibly found its way there since the cultivation of fruit was started."

5. *ELEPHANTULUS RUPESTRIS* A. Sm.

♂. 24, 60, 86, 89, 126, 133, 146, 153, 226. ♀. 52, 69, 114, 123, 124, 132, 145. Louisvale.

"A rock Elephant-shrew, the only species observed, although an individual described from open country near Upington on the north bank of the river may prove to be a species of *Macroscelides*.

There is a narrow naked gland, most conspicuous in adult males, and exuding moisture when fresh, on the underside of the tail, about half an inch from its base, which is easily noticeable during life owing to the slight swelling of that portion, and has a distinct although inoffensive smell of musk.

Elephant-shrews are amongst the most attractive of all small mammals. When caught alive they are quiet and seemingly not very timid; never attempting to bite even if a finger is placed inside their mouths. When handled, the snout—which is very sensitive—is moved about in a circular manner to avoid any contact. Extremely active; their movements are Jerboa-like, and when hopping among rocks curiously resemble a small ball bouncing about. Although normally diurnal, during the hot season they are more frequently to be seen at dusk, and even on moonlight nights. This appears to be the case with a large number of small desert mammals, many of which may become diurnal during the cold weather. Although without doubt chiefly insectivorous, they may occasionally be taken in traps baited with mealies. No Elephant-shrews were observed in the rocky country around the Angrabies Falls."

6. *FELIS PARDUS* L.

♂. 374. Kakamas, 60 miles W. of Upington. 2300'.

"Rare along the Orange River between Kakamas and Upington, although apparently becoming rather more numerous in the rocky hill country in the neighbourhood of the Angrabies Falls.

Said also, together with *Cynalurus*, to become more plentiful northwards in the Kalahari area."

7. *FELIS OCREATA CAFRA* Desm.

♀. 206. Louisvale. 2600'.

354. Skull only. Upington district.

"Fairly plentiful, and, as usual, very destructive to poultry and small game. Very numerous further north, judging by the number of Karosses sent down.

A cat that is undoubtedly *F. nigripes* has been described to me from the Zwart Modder district, some 100 miles north of this river.

Karosses made from the skins of *F. serval* and *F. caracal* are

frequently obtained from Reitfontein and elsewhere in the neighbourhood of the Kalahari."

8. *GENETTA FELINA* Thunb.

♂. 350. Louisvale. 2600'.

364. Skull only. Upington district.

363. Skull only. Augrabies Falls.

"Said to be fairly plentiful, and evidently becoming decidedly more numerous further north, judging from the number of Karosses sent down from Reitfontein and elsewhere."

9. *HERPESTES RATLAMUCHI* A. Smith.

♂. 19. ♀. 8, 26. Louisvale. 2600'.

365, 366, 367. Skulls only. Upington district.

Hitherto the type of this species—B.M. No. 46.6.1.14—has been the only example of it in the British Museum, so that these specimens form a valuable accession. That type, which is also the type of Smith's *badius*, was obtained "between Latakoo and the tropic"—probably therefore on the Molopo River.

"Not plentiful. In this district at any rate, like the Vervet and local tree-rat, they seem to be strictly confined to the belt of trees on either side of the Orange River.

Said never to occur among kopjes or in open country. Although occasionally living in burrows excavated either by themselves or Zorillas they are very largely arboreal, and are active tree-climbers, which would be necessary in an area so frequently inundated.

To a certain extent diurnal.

They are said occasionally to take to a vegetarian diet, and to be fond of digging up and eating ground-nuts. One specimen was caught in a trap baited with mealies.

A grey mongoose—probably *H. pulverulentus*—was twice observed in rocky country away from the river."

10. *CYNICTIS PENICILLATA* G. Cuv.

♂. 14, 22, 213, 244. ♀. 20, 189.

Probably referable to *C. p. pallidior* Thos. and Schw., of which they would appear to be bleached summer examples.

"Plentiful, diurnal, gregarious.

These meerkats were nearly always found living with or close to colonies of *Xerus capensis*, and they do not appear to interfere with each other. In any case, it is impossible to distinguish their warrens.

I never observed *Suricata* in this district. Wherever it is plentiful it is very conspicuous and easily obtained, frequenting the same localities as *Cynictis* and *Geosciurus*; so that, even if according to a few residents it actually does occur locally, it can be by no means numerous. It is reported from the country round Kenhart."

11. *CANIS MESOMELAS* Schr.

♀. 344. Augrabies Falls. 2000'.

353. Skull only.

"Fairly numerous, especially in the neighbourhood of hills or rocky country. As with other small carnivora, judging from local Karosses, becoming considerably more abundant further north.

African jackals are far less noisy than the Indian species, which may be heard during the night at all times."

12. *VULPES CHAMA* A. Sm.

356-8. Skulls only. Upington district.

These skulls were purchased. The exact locality where they were obtained is unknown, except that it was in the vicinity of the Orange River.

"As Karosses made from fox skins from Reitfontein are scarce and rather expensive, it appears that they are either comparatively rare or difficult to procure. Said to exist close to the Augrabies Falls, but I could obtain no other information regarding their occurrence near the river."

13. *MELLIVORA RATEL* Sparrm.

352. Skull only. Upington district.

"Widely distributed, but not plentiful. Entirely nocturnal and seldom seen. Tracks were observed near the Augrabies Falls, while among rocks a deserted bees'-nest was found that had evidently been disturbed by one of these animals."

14. *ICTONYX STRIATUS* Perry.

♂. 72, 121, 159, 202, 248. ♀. 18, 119, 120, 188, 249. Louisvale.

368. Skull only. Upington district.

"Plentiful, nocturnal. Very easy to trap. It is easily tamed, even if caught when nearly or entirely full-grown, when it will seldom, if ever, make use of its offensive scent."

15. *LUTRA MACULICOLLIS* Licht.

♀. 322. Young, sex unknown, 321. Louisvale. 2600'.

"Not plentiful. If, as is reported, *Aonyx capensis* also occurs in this district, this species is probably the more numerous. Very few otter tracks were observed anywhere along the river."

16. *GEOSCIURUS CAPENSIS NAMAQUENSIS* Licht.

♂. 13, 21, 201, 311. ♀. 12, 190. Louisvale, near Upington, S. bank of river. 2600'.

These specimens are quite unlike those of *G. capensis* previously in the Museum, and show, by their pale cinnamon-buff colour, that the Ground Squirrel of the Kalahari and Namaqualand should be subspecifically distinguished from the ordinary more brownish form of the rest of the colony.

Although Lichtenstein's description of his *Sciurus namaquensis** is curiously inapplicable to *Geosciurus*—"corpore supra nigro; subtus brunneo," yet the locality, the presence of white lateral lines, and the universal assignation of his name to the Cape Ground Squirrel, seem to render it certain that it really was referable to this animal, and we can only suppose that he had a very dirty specimen in the old Holthuisen collection. This squirrel is also the *Sciurus levaillantii* of Kuhl.

"Plentiful, diurnal, gregarious.

During the hot weather their coats become particularly short and ragged.

There is no doubt that *Geosciurus*, *Cynictis*, and also *Suricata* where it occurs, frequently inhabit the same warrens, as traps often catch them alternately.

Probably the thickness of their skins, in addition to their unusually great muscular strength, protect them to a great extent from the smaller carnivores. These squirrels are savage, and in captivity do not make good pets, as they are uncertain in temper."

17. TATERONA MILIARIA STELLÆ Wr.

♂. 49, 69, 200, 240, 243, 246, 247, 263. ♀. 50, 51, 158, 212, 215, 286, 312.

These specimens average paler than the original series from Kuruman, but this would seem to be due to seasonal bleaching, as Mr. Woosnam's skins were collected in April and May, and the present set in full summer—November to January.

"Plentiful. Social, rather than gregarious. Attracted by cultivation. Nocturnal. Away from settlements chiefly occurring along the beds of dry water-courses.

Their burrows, which are easy to find, are excavated among the thick scrubby bushes that grow in such localities."

18. DESMODILLUS AURICULARIS A. Sm.

♂. 171, 175, 210, 225, 234, 238, 239, 300, 302, 317. ♀. 176, 178, 179, 205, 209, 216, 217, 232, 233, 237, 298, 299, 301, 319. Louisvale. 2600'.

♂. 349. ♀. 338. Angrabies Falls.

These specimens vary very considerably in colour, many being as pale as the Kalahari *D. a. pudicus* Dollm., while others closely match the true *D. auricularis*. It would seem therefore that we are here on the meeting ground of the two forms.

There seems a tendency for the darker coloured animals to have

* Cat. Rer. Nat. p. 2, 1793.

larger bullæ; but many more specimens are needed before this can be definitely asserted.

“Plentiful; occurring in flat open country.

Their burrows, which are excavated in open sandy patches, are circular, small for the size of the animal, and generally more or less perpendicular, resembling those of an open country elephant-shrew (*Macroscelides*). Nocturnal. Attracted by cultivation, and said occasionally to appear in large numbers.

Individuals from the same locality varied considerably in colour.”

19. *PAROTOMYS* (*LIOTOMYS*) *LITLEDALEI* Thos.

40 specimens. Louisvale.

Quite agree with the specimens from Bushman Land (Kenhart) obtained and presented by Maj. Littledale. This striking animal must be very restricted in range as it was only described in 1918 in spite of its evident local abundance.

There is a good deal of variation in the general colour, but the more brightly toned specimens just match the type from Tuin, Kenhart.

“Local, but extremely plentiful where they occur; their presence coinciding with the large but rather infrequent patches of a succulent species of salt-bush, which they appear almost exclusively to feed on.

Diurnal, not attracted by cultivation. Their burrows, which are excavated among the roots of thick masses of salt-bush, are very conspicuous, being interpolated above ground with thick networks of sticks, and the amount of this work possibly makes them appear to be even more numerous and more gregarious than they really are.

Not readily trapped, this genus being probably less omnivorous than most other small rodents.”

20. *RATTUS* (*PRAOMYS*) *NAMAQUENSIS* A. Sm.

36 specimens. Louisvale.

♂. 325, 326, 333, 329. ♀. 327, 331, 334, 336. Augrabies Falls, 90 miles W. of Upington. Mammæ 1-2=6.

“A rock rat. Plentiful on either side of the Orange River between Upington and the Augrabies Falls; but strictly confined to kopjes and rocky country. Appearing to become rather less plentiful among the hill ranges below the Falls. This may, however, be only a local scarcity owing to a shortage of their favourite food, or on account of frequenting similar situations it may compete with *Petromys*.

The occurrence of this rat is easily ascertained, as it closes up the entrances of rock crevices with large masses of small sticks and grass, probably as a protection against enemies, these

structures being perforated by tunnels just large enough for them to pass through.

Nocturnal. Feeds largely on the seeds of Kamel-thorn and other leguminous bushes. Not attracted by cultivation."

21. *RAITUS (MASTOMYS) COUCHA* A. Sm.

♂. 57, 151, 191-194 (young), 266, 296. ♀. 191, 192 (young), 313, 316. Louisvale.

"Fairly plentiful, but far outnumbered by *Rhabdomys pumilio*, *Tatera*, *Desmodillus*, etc. Nocturnal: attracted by cultivation, and sometimes entering houses. Immature individuals are very different in colour from adults, being dark bluish slate."

22. *MUS MUSCULUS* L.

♂. 135, 235, 241. ♀. 105, 113, 303, 373. Louisvale.

"Fairly plentiful in stores and houses, but, as elsewhere, has not taken to an outdoor existence as it has done in Australia; possibly finding it difficult to compete in this country with the large number of small indigenous rodents.

Imported house rats have not yet found their way to settlements along this part of the river, probably on account of the too recent extension of the railway."

23. *RHABDOMYS PUMILIO BECHUANÆ* Thos.

42 specimens. Louisvale. 2600'.

The deep grey Namaqua form *griseus* is readily distinguishable from any of these specimens, but the paler *deserti* of the Kalahari is more doubtfully separable.

Several examples from Louisvale have the hind foot recorded as 27 mm. in length, the same as in the original type, while others have the foot considerably shorter. In colour also there is marked variation in the general tone.

The skulls have unusually heavy supraorbital ridges, and their bullæ are larger than in most forms of the group—about 7.0 mm. in length.

"Diurnal. Particularly plentiful in the vicinity of cultivation, where it probably outnumbered all other small rodents."

24. *THALLOMYS SHORTRIDGEI*, sp. n.

♂. 169, 170 (young). ♀. 1, 180, 181. Louisvale.

"Shot in tree. Arboreal, not occurring away from the wooded area along the river bank. Not plentiful. Mammæ 0-2=4."—G. C. S.

A brown species with very slightly developed face markings.

Size about as in *nigricauda*, or slightly smaller. General colour above brown—near "Brussels brown"—not so greyish as in other species. Under surface white, but the bases of the hairs are

mostly slaty; in the type of *nigricauda* they are slaty laterally, white-based centrally, and in *kalaharicus* and the Mossamedes species (*nitela*, see below) they are wholly white. Face grey, but the brown of the crown reaches as far forward as between the eyes. Dark facial markings scarcely developed at all, the darker edges of the orbit quite narrow and inconspicuous, and not extending forwards or backwards as an ocular streak. Ears about of the colour of the head; hairs behind them buffy brown. Hands and feet white, with darker patches on the metapodials. Tail long, black, scarcely so thickly hairy as in *nigricauda*.

Skull with well-marked supraorbital ridges, long palatal foramina, and rather small bullæ, much smaller than in *kalaharicus*, rather smaller than in *nitela*, those of *nigricauda* not known.

Dimensions of the type, measured in the flesh:—

Head and body 150 mm.; tail 189; hind foot 29; ear 22.

Skull: greatest length 35·5; condylo-incisive length 34; zygomatic breadth 18·5; interorbital breadth 5; palatal foramina 8·6; bullæ 6·9; upper molar series (worn) 5·6.

Type. Old female. B.M. No. 23. 5.9.156. Original number 180. Collected 2 December, 1922.

This species is distinguishable from *T. nigricauda* by its slaty-based belly hairs, its larger feet, and the marked reduction in the development of the black facial markings.

Capt. Shortridge made special mention of this striking species as being quite new to him, and we have much pleasure in naming it in his honour.

[In working out *Thallomys shortridgei* we have found that the genus would appear to contain six species, which might be arranged as follows:—

- | | |
|---|----------------------------------|
| A. Black <i>Eliomys</i> -like face markings strongly developed. | |
| a. Bullæ comparatively small, about 7 mm. in length. Angola..... | 1. <i>T. nitela</i> , sp. n. |
| b. Bullæ large, over 8 mm. in length. East Africa | 2. <i>T. loringi</i> Hell. |
| B. Black face markings less developed. | |
| c. Face markings medium. | |
| a ² . Hairs of chest wholly white, of belly slaty at base. Namaqualand | 3. <i>T. longicauda</i> Thos. |
| b ² . Hairs of whole underside white to base. Kalahari | 4. <i>T. kalaharicus</i> Dollm. |
| d. Face markings practically absent. | |
| c ² . Belly hairs slaty based. Orange River. | 5. <i>T. shortridgei</i> T. & H. |
| d ² . Belly hairs white at base. E. Africa. | 6. <i>T. scotti</i> , sp. n. |

The teeth of all are of about the same size—5·6–5·9 for the upper series—with the exception of *T. longicauda*, in which this measurement is only about 5·1 mm.

Details of the new species:—

T. nitela, sp. n.

Size comparatively large. Central dorsal area buffy brown. Sides and flanks markedly greyer. Under surface white, the hairs white to their bases. Forehead grey. A strong black facial line running from the side of the muzzle through the eye nearly to

the ear. Cheeks grey, but a distinct whitish collar running up from the throat towards the ear. Hands and feet white, with small darker metapodial patches. Tail strongly pencilled, deep black.

Skull with bullæ smaller than in *loringi*, larger than in *short-ridgei*.

Dimensions of the type, measured in the flesh :—

Head and body 160 mm. ; tail 191 ; hind foot 30 ; ear 22.

Skull : front of incisors to back of m^3 18·8 ; palatal foramina 8·7 ; upper molar series 5·9.

Hab. Mossamedes. Type from Bomboné, altitude 3200' ; other specimens from Ponangkuma 3300'.

Type. Adult male. B.M. No. 9.10.1.49. Original number 17. Collected 11 March, 1906, by Dr. W. J. Ansorge. Six specimens.

A very well-marked species, with its black facial lines, white belly, whitish collar, and bushy black tail.

T. scotti, sp. n.

General colour pale greyish buffy becoming stronger buffy on the rump, sides greyer buffy ; under surface sharply defined pure white, the hairs white to their bases. Head grey ; facial streaks present, in the form of a blackish clouding round the eyes, but far less developed than in *T. nitela*. Ears with fine buffy hairs and a buffy tuft at their anterior base. An indistinct whitish collar perceptible below ears. Hands and feet white, the latter wholly white, the former with small dark metatarsal patches. Tail as usual greyish brown basally, black for the greater part of its length, not very bushy.

Dimensions of the type, apparently not fully adult :—

Head and body 140 mm. ; tail 150 ; hind foot 24.

Hab. British East Africa ; type from the Yata Plains, two days' march East of the Thika River where it joins the Tana. Altitude 4000'.

Type. Immature female. B.M. No. 12.5.19.17. Collected 19 November, 1911 and presented by R. L. Scott, Esq.

By its reduced facial markings and wholly white belly hairs this species is readily distinguishable from the other East African form, *T. loringi*, while its paler general colour is also characteristic.

We have named it in honour of its collector Mr. R. L. Scott, to whom the National Museum owes many important donations.]

“ Entirely arboreal, and confined to the tree belt that fringes the Orange River. This belt is liable to partial or complete inundation during the frequent rising of the river, being occasionally under water to a depth of from six to ten feet, at which times these rats must live entirely among the topmost branches of the trees.

Shy, and a very active tree climber. Apparently mainly nocturnal, although occasionally to be seen high up among the branches of trees in the early evenings before sunset, so that during the cold season they may become partly diurnal. Breeding

in hollow branches, the entrances to which are guarded by large conspicuous structures of sticks, one of these, which was about fifteen feet from the ground, measuring over six feet in length; while another was built under the roof of a seldom-used Kaffir hut. I did not find this species plentiful, although it is said at times to occur in comparatively large numbers."

25. *SACCOSTOMUS HILDÆ* Schw.

♂. 59, 161, 182. ♀. 98, 127. Louisvale.

These specimens agree closely with the original series from Kuruman, but our attention has been drawn to the set from Molopo and Lehutitung, in the real Kalahari, determined by Capt. Dollman as *S. anderssoni* de Wint.*, which he distinguishes from *hildæ* by the slightly lighter colour of the adults and much lighter colour of the young, specimens of a similar age being present in both sets.

In this separation we quite agree with him, but not as to the reference of the Kalahari form to the Damaraland species, the difference in colour being in our opinion sufficient for the distinction of the two. We therefore now describe

Saccostomus pagei, sp. n.

General colour above very light, nearly matching Ridgway's "drab-grey," still paler on the sides, much paler and less buffy than in *S. anderssoni*, rather paler than in *S. hildæ*. Half-grown specimens like the adults or even paler, while in *S. hildæ* these are markedly darker than their parents.

Other characters as in *S. hildæ*.

Dimensions of the type, measured in the flesh:—

Head and body 124 mm.; tail 53; hind foot 19; ear 18.

Skull: greatest length 33; condylo-incisive length 31; upper molar series 48.

Hab. Kalahari and Northern Bechuanaland. Type from Lehutitung, 3300'; other specimens from the Molopo River. 3000'.

Type. Adult male. B.M. No. 10.6.3.54. Original number 18. Collected 18 May, 1909, by R. B. Woosnam. Nine specimens.

The striking difference in the colour of the young is the main reason for distinguishing this animal from *S. hildæ*. In *S. anderssoni* the adult is decidedly darker.

We have named this Kalahari species after Mr. John Page, one of the Kaffrarian Museum Trustees, to whom Capt. Shortridge has been very much indebted for help in many ways both in regard to his King William's Town work, and especially in relation to his collecting trip to the Kalahari region.

"Fairly plentiful, but probably owing to the fact that other small rodents occurred in greater numbers in similar localities, not often trapped.

Nocturnal; attracted by cultivation.

* Ann. & Mag. N. H. (8) vi. p. 398, 1910.

This is one of the species that is said occasionally to occur in large quantities. This is a peculiarity of many of the small Karroo rodents, which may in some cases be a migratory movement, but it is equally probable that at times a favourable season, or temporary absence of some plague or enemy, enables them to breed in abnormal numbers."

26. PEDETES CAFER Pall.

♂. 122, 208, 220, 222, 223, 320. ♀. 41, 165, 174, 207, 218, 219, 231. Louisvale.

"Nocturnal. Plentiful around Louisvale, especially near cultivation. Rather stupid and clumsy, and, although somewhat similar to, possessing little of the agility of a Wallaby or even the Australian Kangaroo Rat (*Beltongia*), which perhaps they more resemble in their movements and habits.

Easy to shoot with a lantern at night. Normally, when hunted, they make for the nearest burrow. Their large burrows, which occasionally have an emergency outlet, are usually excavated in open sandy patches."

27. HYSTRIX AFRICÆ-AUSTRALIS Pet.

351. Skull only. Upington district.

Apparently rather rare generally, although probably occurring wherever there are large enough areas of broken rocky country to afford them plenty of cover.

Tracks, shed quills, and old burrows were observed near and below the Augrabies Falls.

28. PETROMYS TYPICUS A. Sm.

♂. 330, 337. ♀. 341. Augrabies Falls, Orange River, 90 miles W. of Upington. 2000'.

♀. 346, 347. Below Augrabies Falls, 100 miles W. of Upington. 1500'.

Comparing this series with the set obtained by Mr. Grant at Klipfontein, Namaqualand, there seems at first sight a good deal of difference in colour, the present series being paler. This difference, however, proves to be due to season, those from Klipfontein having been collected in the winter and those from Augrabies Falls in the summer. Moreover, some of the latter show new hair, as strongly coloured as in the Klipfontein specimens, pushing through the old blackened fur.

"First obtained among hills and rocks at the Augrabies Falls, afterwards in similar localities twelve miles below. Although it was easy to ascertain where they occurred, they did not appear to be particularly plentiful, and were not readily trapped. This may be the eastern limit of their range, although possibly extending as far as a line of rocky hills that

runs astride of the river about halfway between Kakamas and Upington. Though previously considered to be entirely diurnal, during the hot season at any rate they become most active towards sunset, while several were caught in traps set overnight.

They creep rather than jump among the rocks, and did not appear to be particularly active. Their habit of filling up the entrances of their hiding places between crevices with a network of sticks resembles that of *Rattus namaquensis*, except that larger and stouter sticks of succulent plants are largely used. *Petromys*, like *Thryonomys*, is a most difficult animal to prepare, the skin being of the consistency of wet blotting-paper. It may be noted that a large area of broken hilly country is often like a forest in that small mammals are generally more numerous among the outside hills and rocks, in the same way that there is more life near the edge of a forest. A female examined contained one young."

29. *LEPUS SAXATILIS AURANTII*, subsp. n.

♂. 72, 73. ♀. 74, 118. Louisvale. 2600'.

"Not at all confined to rocky country—plentiful around cultivation."—G. C. S.

General characters of ordinary *saxatilis*, the ears not especially lengthened as in the Namaqua subspecies *megalotis*. Colour above, where unbleached, rather paler grey than in true *saxatilis*, but bleaching in summer to a much greater extent, the difference in summer specimens of both very striking. Type with its unbleached hairs "light buff" tipped with black, its bleached areas wholly dull sandy. Crown bleached dull brownish. Throat-band pale greyish buffy.

Skull with very large bullæ, markedly larger than in the longer-eared *megalotis*.

Dimensions of the type, measured in the flesh:—

Head and body 540 mm.; tail 117; hind foot 126; ear 137.

Skull: greatest length 101; condylo-incisive length 89; length of bulla 14.

Type. Old female. B.M. No. 23.5.9.173. Original number 118. Collected 23 November, 1922.

While December specimens of *L. saxatilis* from Central Cape Colony are little paler or more bleached than winter ones, these November examples are all strikingly paler than any specimens of the group that we have seen, whatever time of year they were killed. Such patches of fresh fur as are present are also somewhat paler than occurs in true *saxatilis*. The ears of this form are only of the same length as in true *saxatilis*, not of the extraordinary dimensions of those of *L. s. megalotis*; while on the other hand its bullæ are larger than those of any others of the group.

"Rather plentiful. Attracted by cultivation. Like *Pedetes* easily shot in cultivated ground by night with a lantern, at which times they become dazzled by the light and unusually sluggish in their movements. Sometimes put up by day among thick salt-bush.

Kohl-haas or Rhebok-haas of the Dutch.

Another hare, known locally as Vlack-haas, without doubt a local form of *Lepus capensis*, is reported from this district. It is said to occur in open country and not to be attracted by cultivation. Described as being shy, solitary, and rather rare."

30. *PRONOLAGUS CRASSICAUDATUS RUPESTRIS* A. Sm.

♂. 15, 142, 149, 150, 155. ♀. 154. Louisvale. 2600'.

♀. 332. Augrabies Falls. 2000'.

We are now quite convinced that Smith's immature type of *Lepus rupestris* should be referred to the Namaqualand form, to which in 1904 Thomas and Schwann assigned the later name of *Lepus melanurus* Rüpp., the latter being therefore a synonym of the former.

These specimens are more suffused with rufous than most of the examples from Namaqualand, but the difference would appear to be one of season.

"Plentiful where they occur, the range coinciding with that of rocky kopjes and hill ranges, where they are frequently to be found in considerable numbers; otherwise not gregarious to the same degree as a European rabbit. Shy, and rarely appearing before dusk, and even then seldom wandering far from cover. Occasionally the entrances of their hiding places under rocks are protected by an entanglement of sticks and brushwood, but this may indicate breeding places and afford protection for their young. When in the open they are comparatively slow as compared with typical hares, relying more on quickness in dodging behind rocks or under crevices. Often frequenting the same localities as *Procavia capensis*, although many places where they may be numerous will not afford suitable cover for Dassies, which prefer kopjes and other situations where there are abundance of large loose boulders. These rabbits are difficult to prepare, the skin being exceedingly tender, especially on the tail. The fur comes out very easily, and when shot the cloud of fur readily indicates a hit. They are said to pull out large quantities for the purpose of making nests for their young.

Klip-haas or Rooi-haas of the Dutch."

31. *ANTIDORCAS EUCHORE* Zimm.

♀. 375. Horns only. Upington district.

"Springbuck seldom wander close to the Orange River nowadays in this district, but are said to be still reasonably plentiful in the direction of the Kalahari and elsewhere inland."

32. *OREOTRAGUS OREOTRAGUS* Zimm.

♂. 340. ♀. 345. Augrabies Falls.

♀. 355. Skull only.

“Klipspringers exist in small numbers among the rocky hills and ravines in the vicinity of the Augrabies Falls, and may become more numerous in the hill country still further west.

A pair were put up on one of the islands near the Falls, which crossed over a shallow branch of the river to the mainland when hunted.

I have heard of no other locality eastwards along the river between the Falls and Upington where they occur, although they are said to reappear near Prieska.

The hair of Klipspringers was formerly much in demand among the Boers for stuffing saddles.

Apparently—apart from stragglers—the only other resident buck occurring near the river is the Steinbok. A single individual was observed about twelve miles south of Louisvale. They are well known locally, although not considered plentiful.”

33. *HIPPOTAMUS AMPHIBIUS* L.

204. Incisor picked up from bed of river near Upington.

“The portion of a tusk sent was picked up in the bed of the Orange River near Louisvale, and presented by Mr. D. Biggs.

Although Hippopotami have long been extinct above the Augrabies Falls, fragments of tusks are not infrequently picked up in or near the river bed.

A small school of Hippo are said to exist in the lower reaches of the Orange River, but as this is a very uninhabited region few authentic reports are available about them.

Cornell, in his fairly recent book, ‘The Glamour of Prospecting,’ mentions having seen them, so that there is every reason to believe they are still there.”

34. *PROCAVIA CAPENSIS* Pall.

♂. 329, 335. ♀. 328, 342. Augrabies Falls. 2000’.

359, 360. Skulls only. Upington district.

361. Skull. Augrabies Falls.

203. Skull. Kopje 12 miles from Louisvale.

“Plentiful among rocks and hills around and below the Augrabies Falls. There are few suitable localities for Rock Dassies near Upington; although a skull was picked up on a large isolated kopje about twelve miles to the south of Louisvale.

Diurnal; but during the hot weather seldom showing themselves except during the early mornings and evenings.”